

C L A I M S

What is claimed as new and desired to be protected by
Letters Patent is as follows:

1. A building panel comprising:
 - (a) at least two spaced-apart skins;
 - (b) a core of firm, solid insulating material between said panels;
 - (c) an adhesive between each said panel and said core; and
 - (d) a treatment chemical in said skins.

2. A building panel as claimed in Claim 1 wherein said skins further comprise oriented strand board panels.

3. A building panel as claimed in Claim 1 wherein said skins are plywood.

4. A building panel as claimed in Claim 1 wherein said skins are particleboard.

5. A building panel as claimed in Claim 1 wherein said skins are tempered hardboard.

6. A building panel as claimed in Claim 1 wherein core further comprises a polystyrene.

7. A building panel as claimed in Claim 6 wherein said core further comprises an expanded polystyrene.

8. A building panel as claimed in Claim 1 wherein said treatment material further comprises a borate having insecticidal and fungicidal properties.

9. A building panel as claimed in Claim 8 wherein said borate said consists essentially of a sodium borate.

10. A building panel as claimed in Claim 9 wherein said sodium borate consists essentially of disodium octaborate tetrahydrate.

11. A building panel comprising:
- (a) a pair of spaced apart wood-based skins;
 - (b) a core of firm solid insulating material between and bonded to said skins; and
 - (c) a borate having insecticidal and fungicidal properties diffused in at least some portions of said core.

12. A building panel as claimed in Claim 11 wherein said core is a polystyrene.

13. A building panel as claimed in Claim 12 wherein said core is an expanded polystyrene.

14. A building panel as claimed in Claim 11 wherein said bond is produced by a urethane laminating adhesive.

15. A building panel as claimed in Claim 11 wherein said borate is a sodium borate.

16. A building panel as claimed in Claim 15 wherein said sodium borate consists essentially of disodium octaborate tetrahydrate.

17. A building panel comprising:
- (a) a pair of spaced-apart wood-based skins;
 - (b) a core of firm solid insulating material between and bonded to said skin; and
 - (c) a sodium borate diffused in at least some portions of said core.

18. A building panel as claimed in Claim 17 wherein
said borate consists primarily of ~~disodium octaborate~~
tetrahydrate.

19. A building panel comprising:
- (a) a pair of spaced-apart wood-based skins;
 - (b) a core of expanded polystyrene between and bonded to said skins; and
 - (c) a sodium borate diffused in at least some portions of said skins and said core.

20. A building panel as claimed in Claim 19 wherein said borate consists essentially of disodium octaborate tetrahydrate.

21. A process for making a building panel comprising the steps of:

- (a) mixing a borate having insecticidal and fungicidal properties with beads of a polystyrene;
- (b) expanding said mixture into a mold; and
- (c) laminating said core between two skins.

22. A process as claimed in Claim 21 further
comprising the step of diffusing a borate in said skins.

23. A process for making a building panel comprising the steps of:

- (a) expanding beads of a polystyrene into a mold to form a core;
- (b) laminating said core between two skins to produce a panel; and
- (c) treating said panel with a borate having insecticidal and fungicidal properties.

24. A process as claimed in Claim 23 further comprising the terminal step of curing said panel.

25. A process as claimed in Claim 23 wherein said application step (c) further comprises dipping said panel into a hot concentrated borate solution for a period of 2-5 minutes.

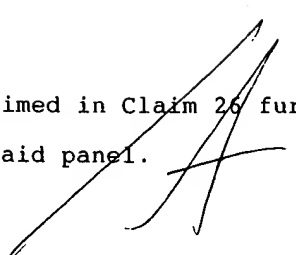
26. A process as claimed in Claim 23 wherein said application step (c) further comprises the steps of:

- (a) passing said panel through a spray tunnel; and
- (b) spraying a borate solution having insecticidal and fungicidal properties onto said panel as it passes through the tunnel.

27. A process as claimed in Claim 26 further comprising the additional steps of:

- (a) collecting the borate solution that does not adhere to said panel;
- (b) filtering said borate solution; and
- (c) recirculating said borate solution through the circulation system of the spray tunnel.

28. A process as claimed in Claim 26 further comprising the step of curing said panel.



29. A process for making a building panel comprising the steps of:

- (a) expanding a polystyrene into a mold to form a core;
- (b) treating said core with a borate having insecticidal and fungicidal properties; and
- (c) laminating said core between two skins.

30. A process as claimed in Claim 29 further comprising the additional step of treating said skins with a borate having insecticidal and fungicidal properties after said core and said skins are laminated.

31. A process as claimed in Claim 29 further comprising the additional step of treating said skins with a borate having insecticidal and fungicidal properties prior to laminating said core and said skins together.

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32. A building material comprising:

- (a) expanded polystyrene; and
- (b) a treatment chemical mixed throughout at least a portion of said expanded polystyrene.

~~2~~ 33. A building material as claimed in Claim ~~32~~¹ wherein said expanded polystyrene is in the form of a firm solid block.

~~3~~ 34. A building material as claimed in Claim ~~32~~¹ wherein said expanded polystyrene is in the form of small individual pellets.

A ~~35. A building material as claimed in Claim 32 wherein said treatment chemical comprises a borate having insecticidal and fungicidal properties.~~ B

B ~~4~~ 36. A building material as claimed in Claim ~~35~~¹ wherein said borate further consists essentially of a sodium borate.

~~5~~ 37. A building material as claimed in Claim ~~36~~⁴ wherein said sodium borate consists essentially of disodium octaborate tetrahydrate.

638. A process for making a building material comprising the steps of:

- (a) mixing a borate having insecticidal and fungicidal properties with beads of a polystyrene; and
- (b) expanding said mixture.

7. ~~29~~. A process as claimed in Claim ~~38~~⁶ further comprising expanding said polystyrene into a mold.

~~840~~. A process for making a building material comprising the steps of:

- (a) expanding a polystyrene into a mold; and
- (b) treating said polystyrene with a borate having insecticidal and fungicidal properties.

9. A process as claimed in Claim ~~40~~⁸ wherein said treatment step further comprises dipping said expanded polystyrene into a treatment solution.